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AUTHOR Barton, Paul E.
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ABSTRACT

It is generally acknowledged that the earnings differential between those who have college degrees and those who do not is large, but whether higher achieving students who do not go on to college earn more than lower achieving students has not been clarified. Research from the National Education Longitudinal Study of 1988 shows that the labor market does not generally reward efforts to excel in school for those who persevere to graduation. In the United States, a situation has developed in which those under the age of 21 are pretty much treated alike in the labor market. The age-level of jobs that pay more and have career ladders and fringe benefits seems to be rising toward the mid-20s. Young graduates who are not rewarded in the years just after high school are not likely to realize this, and this makes raising high school achievement levels and graduation rates more difficult. Overall, there is a disjuncture between the age at which public education is completed and the age of economic adulthood. (SLD)

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ETS POLICY NOTES

News from the ETS Policy Information Center

VOLUME 9, Number 2 SUMMER 1999

LEARN MORE, EARN MORE?

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Learn More, Earn More?

Introduction

Americans continually receive societal messages telling them that learning more—and, particularly, receiving degrees and certifications—generally leads to higher earnings. Related information is published regularly and is often communicated in terms of average earnings for people with different levels of education. Most high school students have read about this relationship and have likely been told by parents that they would have to get a good education to make good money.

Perhaps less well known is that the earning differential between those who have college degrees and those who do not has been widening over the last couple of decades. And real earnings have actually declined for those with a high school diploma or less.

Economic incentives to learn beyond high school abound, and economists attribute increasing post-high school enrollments in educational institutions to a growing market for advanced education. Economists are the first to point out that labor markets play a critical role in motivating young people to further their education. However, there is a glaring exception to this rule that has received practically no attention.

Students heading into the work force right after high school do not receive market signals telling them that learning more in high school will result in their earning more upon leaving high school—up to, say, age 20 or 21. This is important when trying to understand student behavior and may have a lot to do with

This Issue:
Learn More, Earn More?

- Introduction
- The Effect of Grades
- The Effect of Achievement
- The Effect of Graduation
- Implications

Editor's Note

This issue was authored by Paul E. Barton; the views he expresses are his own.

Acknowledgments

We are indebted to Richard Fry and Harold Wenglinsky of Educational Testing Service, and John Bishop of Cornell University for their reviews. Reviewers do not necessarily agree with all statements and interpretations.

Harold Wenglinsky extracted data for this report from NELS:88. Janet Spiegel edited the piece, Carla Cooper provided the desktop publishing, and Jim Chewning served as production coordinator.

students' motivation to complete high school, as well as to take more rigorous courses and achieve good grades.

The Effect of Grades

Let's start with how the market treats high school graduates who had good grades. Differences in employment and earnings among students who graduated from high school with different grade-point averages (GPAs) and who were not enrolled in college two years later are summarized in Figure 1. The data source is the National Center for Education Statistics' NELS:88 survey, which began with a national sample of eighth-graders in 1988 and tracked the students through 1994, when they would have been out of high school for two years, or 19- or 20-years-old.

Were those who had achieved better grades more likely to be employed? Figure 1 shows that the percent of employed males was slightly higher for those with high grades but that the differences were not statistically significant. For females, the middle group had a higher percent employed than the low or high group, and women with the highest GPAs were no more likely to be employed than those with the lowest GPAs.

The bottom half of Figure 1 shows differences in earnings among students with different GPAs. While it shows that male graduates with the lowest GPAs had higher average earnings than those with the highest GPAs, the difference was not statistically significant. For females, the monthly earnings were about the same.

In sum, these data show that the labor market does not generally reward high school graduates who had high grades. Of course, the meaning of grades can vary considerably from school to school; so students with high GPAs in one school may have what are considered low GPAs at another school. Because of this, we used a more rigorous comparison approach, by also considering reading test scores provided by NELS:88.

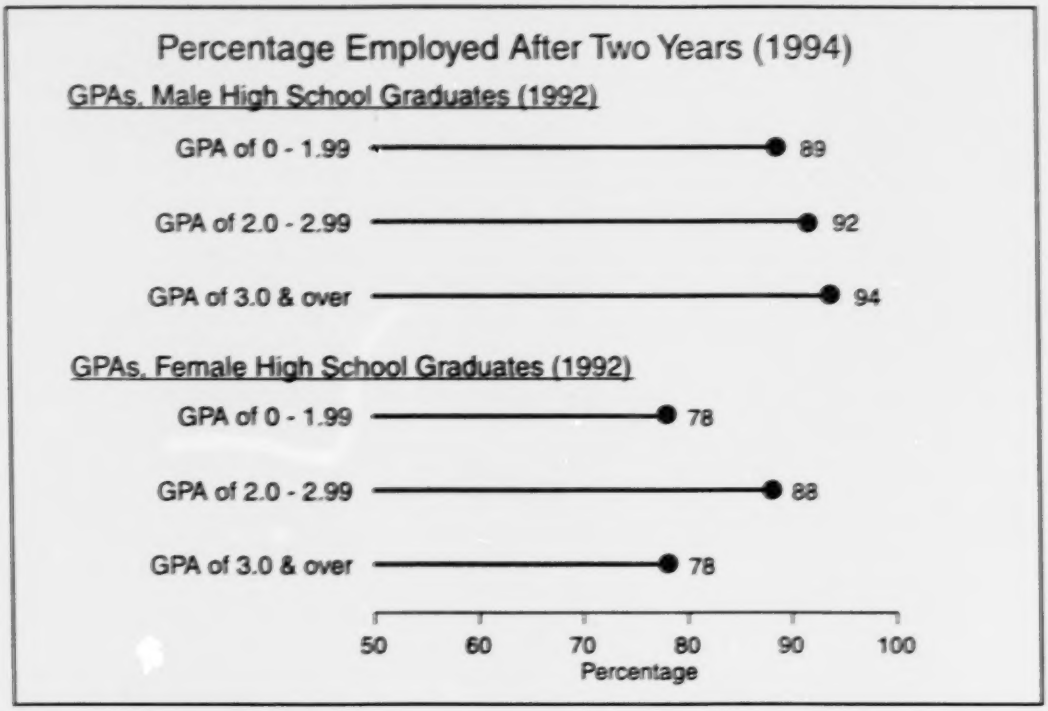
The Effect of Achievement

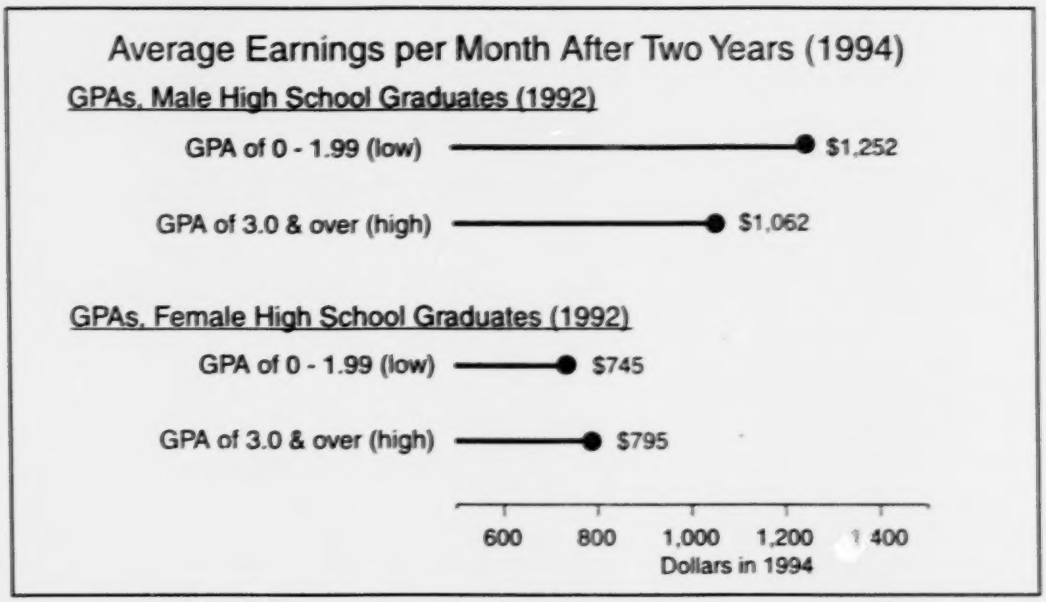
In Figure 2, we compare high school graduates by the quartile in which they scored on the reading test. The employment rate rose for males from the lowest to the third quartile but then dropped down considerably for those scoring in the highest quartile. Thus, the highest scoring male graduates were least likely to be employed. For females, the differences were small among the second, third, and fourth quartiles, but the employment rate was much lower for those scoring in the lowest quartile.

In terms of monthly earnings, there was no statistically significant difference between the lowest and the highest quartiles for males. For females, the earnings were almost identical.

We can also get a feel for earnings by using the Armed Services Vocational Aptitude Battery (ASVAB), given in the National Longitudinal Survey of Youth by the U.S. Bureau of Labor Statistics. In Figure 3, we can see workers' average hourly rate of pay by test scores for mathematics, science, and paragraph comprehension. The data are for *all* civilian workers ages 19-31, not just 19-year-old high school graduates who are not enrolled in school. (However, the results are similar if we only look at high school graduates.)

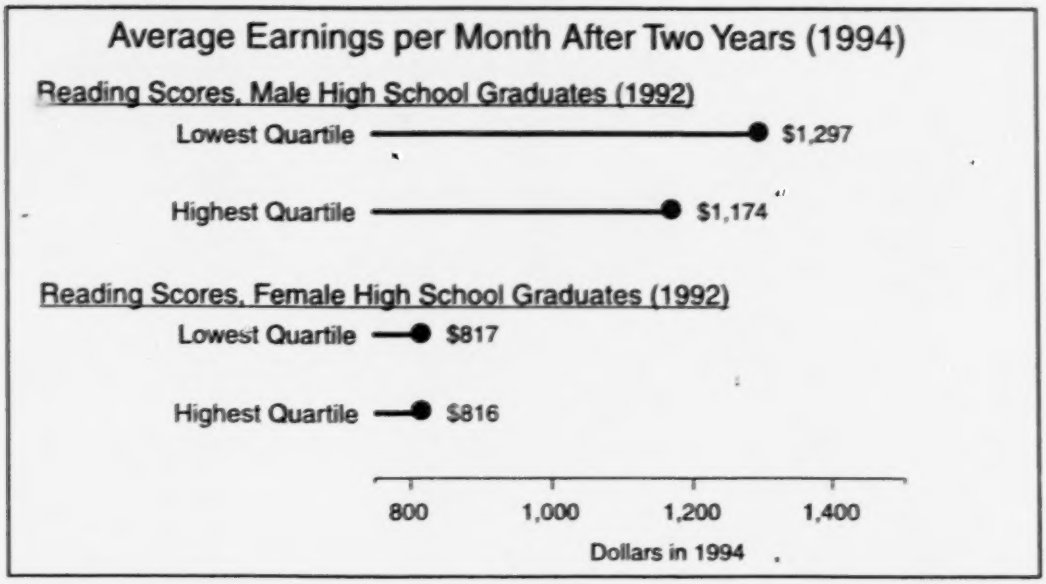
Figure 1- The Difference Grades Make
Employment and Earnings of Male and Female 1992 High School Graduates (not enrolled in school) Two Years After High School (1994), by Grade Point Average





Source: NELS:88 data (National Center for Education Statistics), calculated by the ETS Policy Information Center.

Figure 2 - The Difference Reading Achievement Makes Employment and Earnings of Male and Female 1992 High School Graduates (not enrolled in school) Two Years After High School (1994), by Reading Scores



Source: NELS:88 data (National Center for Education Statistics), calculated by the ETS Policy Information Center.

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Figure 3 shows that, from ages 19-22, real wage rates differ little, irrespective of the quartile in which the workers scored. However, after about age 22, the pay rates start to separate, and those with higher scores start to gain higher pay. The difficult question is why this happens. John Bishop[1] has suggested a couple of reasons.

One possibility, he says, is that high school graduates who got higher grades or scores entered jobs that had greater training opportunities; so even though these jobs may not have paid more initially, their related training ultimately led to higher pay. The other possibility Bishop discusses is that employers may not fully realize the skills of young new hires initially—but that they may over time. This author would add that we don't know if employers end up paying more for specific academic knowledge or whether the same set of characteristics that allows people to excel in the school environment also enables them to rise to the top in employment settings.

The Effect of Graduation

Overall, then, the previous discussion of findings shows that the labor market does not generally reward efforts to excel in school—or that it does so only marginally—for those who persevere to graduation.[2] But in the first few years after graduation, does it reward those who have earned a high school diploma?

Figure 4 compares 19- and 20-year-olds not enrolled in school, on the basis of whether they dropped out of high school or got a diploma (again using NELS:88 data). It shows that males who graduated were somewhat more likely to have a job (91 percent, compared to 84 percent) but that females who graduated were considerably more likely to have one (81 percent, compared to 60 percent). These differentials are less than what has been reported in the annual census reports (March Current Population Surveys). The March 1999 report shows a differential of 24 percentage points in favor of high school graduates from ages 18 to 20. For recent high school graduates and dropouts, who are surveyed by the census every October, the differential has been narrowing—from 24 percentage points in 1980, to 22 in 1990, to 17 in 1996—suggesting less differentiation by employers based on high school graduation (October Current Population Surveys, Bureau of the Census). So there seems to be some variation in the size of the differential depending on the time of the survey and the age of the respondents.

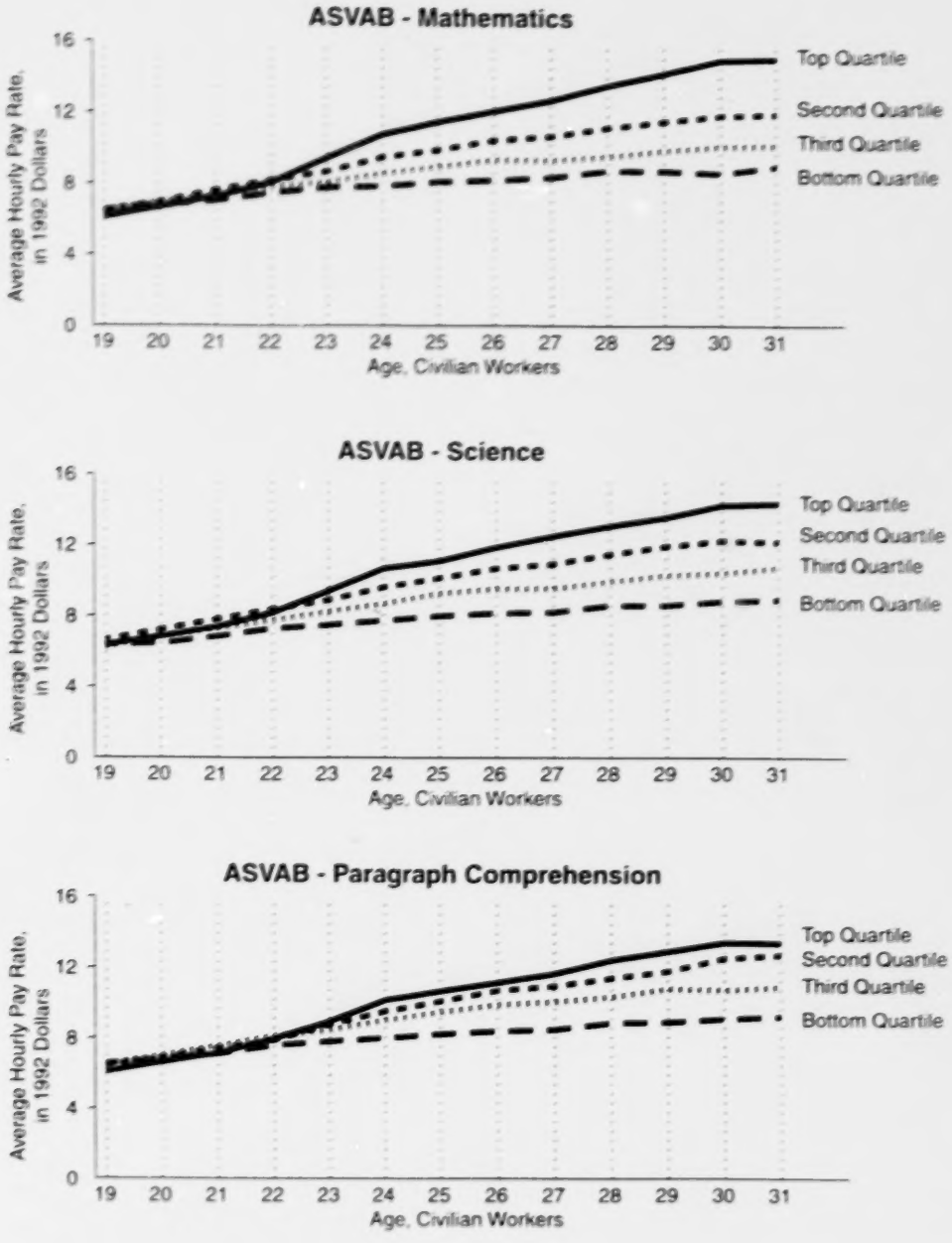
Figure 4 shows that neither males nor females who were working at ages 19 and 20 earned significantly different average monthly wages based on whether or not they finished high school. So while employers may often prefer hiring youths with a high school diploma, they will not, on average, initially pay a 19- to 20-year-old more for having one; however, a pay differential does emerge over the years.

Although exactly comparable statistics do not exist from 1975, we can safely say that little or no progress has been made in increasing the high school completion rate over the

[1] John Bishop, "Achievement Test Scores and Relative Wages," in *Workers and Their Wages: Changing Patterns in the United States*. Marvin Kosters (ed), Washington, D.C.: American Enterprise Institute Press, 1993.

[2] This is based on only one explanatory variable. Further investigation, using multivariate analyses, would be desirable.

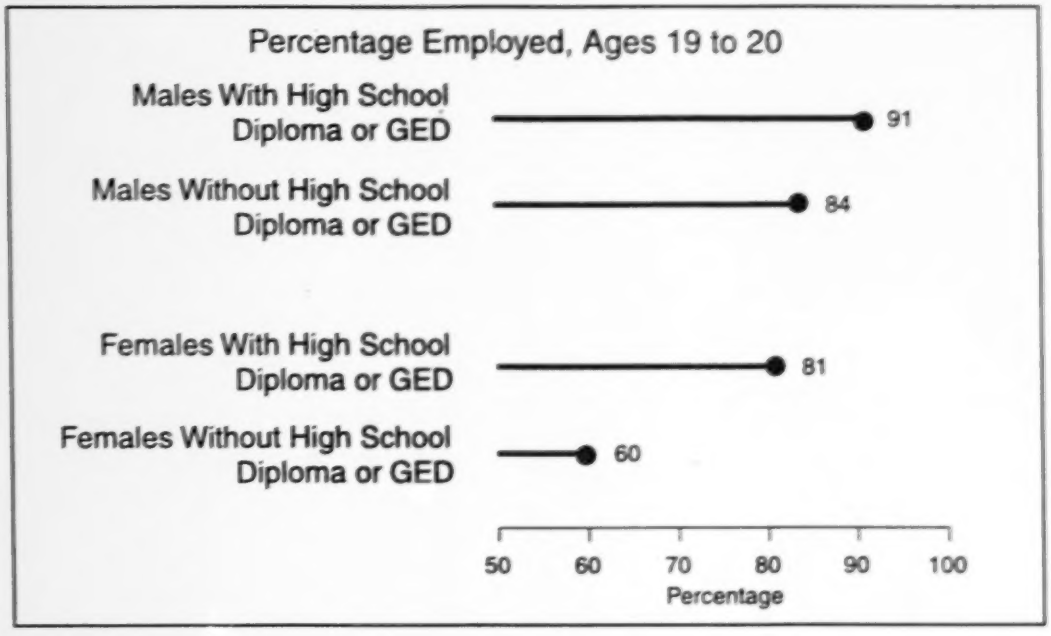
Figure 3 - The Difference Age Makes
Average Hourly Pay Rate for Civilian Workers, by Age and Armed Services Vocational Aptitude Battery (ASVAB) Score Quartile

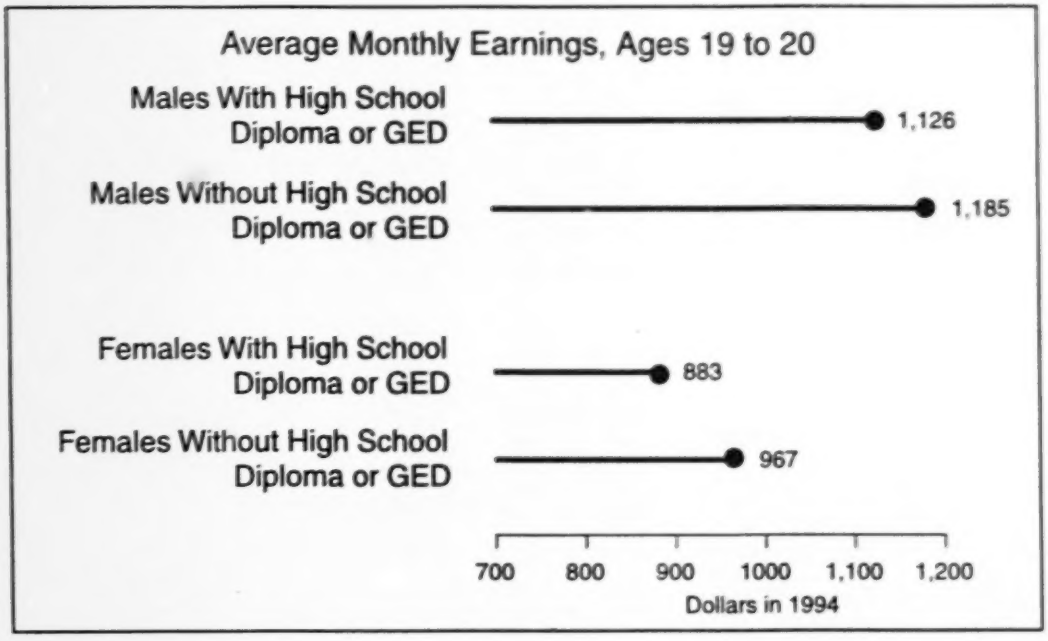


Source: U.S. Department of Labor, Bureau of Labor Statistics, *National Longitudinal Survey of Youth, 1973-93* (http://nces.ed.gov/pubs97/97939.html).

Note: To control for differences in age at testing, individuals were assigned to age-specific performance quartiles for each subject, based on their age at testing.

Figure 4 - The Difference A Diploma Makes
Employment and Earnings of Male and Female 19- and 20-Year Olds (not enrolled in school in 1994), With and Without a High School Diploma or GED From 1992





Source: NELS:88 data (National Center for Education Statistics), calculated by the ETS Policy Information Center.

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last quarter century. In 1975, 83 percent of those ages 19-20 had received a diploma or a GED, compared to 85.9 percent in 1997, for those ages 18-24. (Given that the 1997 age group was larger than the 1975 one, these percentages are likely about equal.)

In this analysis, however, we are more interested in those who stay in high school and graduate with a diploma—and the related trend is disturbing when one considers reports from The National Education Goals Panel since 1988. In 1988, 80.3 percent of 18-24-year-olds had regular high school diplomas; by 1992, this figure had risen to 81.2 percent. Since then, there has been a steady decline: to 78.8 percent in 1994, to 77.5 percent in 1995, to 76.4 percent in 1996, and to 74.9 percent in 1997.[3] This author has no explanation for the recent decline but suggests that the labor market is not sending the kind of signals in the early years after high school that would encourage youths to persevere.

While the lack of immediate labor market reward for achievement in—or even finishing—high school has been generally downplayed, or seemingly unnoticed, by economists and educators, it has not likely gone unnoticed by teenagers.[4] Such youths are usually attuned to how to earn the privileges and rewards of adulthood—and they surely check to see if putting extra time into studying is generally worth the effort. They have friends and older siblings who left school and went to work, and they find out what these people earn. They see the Help Wanted ads in the papers and the signs in stores. They know that most 17-, 18-, and 19-year-olds are working as sales clerks at the 5 and 10 or drug store checkout counters, or in fast food chains.

However, the plans and aspirations of young people in this age range are also shaped by forces other than peers. Teenagers know how their parents and relatives fared and can relate this information to how much education these people received. Many also listen to the advice of parents, who likely know that education pays off ultimately, if not immediately. We just don't know how the varying influences and conflicting messages affect the decisions young people make and the effort they expend.

One apparent fact, however, is that we cannot consider a motivating force for high school students to be the job market for youths who have been out of school for two years or so; we need to establish for them that the payoffs may take several years to emerge. We must also let these high-schoolers know that if they are inclined to go on to college, they will need to take more rigorous courses; and if they aim for selective schools, they will also need to get above-average grades in these courses.

This lack of differences in early employment and earnings experience is not a recent development. While the kind of data used in this report was not available in the 1970s, enough information was there to see that a similar situation existed back then. In 1975, this author wrote a book chapter entitled, "Youth Employment and Career Entry,"[5] which asks the question, Is teenage employment different? The answer determined was yes:

[3] Data for 1988-1997 are from various years of the October Current Population Surveys (unpublished data). Data for 1975 are from *Dropout Rates in the United States, 1991*, National Center for Education Statistics, 1992.

[4] However, John Bishop at Cornell has been calling our attention to the matter for more than a decade.

[5] Paul E. Barton, "Youth Employment and Career Entry," in *Labor Market Information for Youths*, edited by Seymour Wolfbein, Temple University School of Business Administration, Philadelphia, 1975, pp. 86-87.

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Teenagers go into particular occupations and industries that are teenage intensive, and work their way into the kinds of jobs adults hold as they pass the magic age of 20 or 21....

In raising the question of the access of teenagers to adult-type jobs, the concern is greatest with the school-leavers expecting to enter the labor force on a full-time basis. This review of the evidence strongly suggests that teenagers are largely held back from adult-type jobs, and that until age 20 or 21... a high school diploma (at least for males) makes very little difference in the early years of work experience.

Finishing high school does not, in the labor market, coincide with entering economic adulthood. Instead, says the 1975 report, "It gives rise to a period where the youth is dislocated from the education system and not yet located in the employment world but remains in a youth labor pool, aging and waiting."

The implication is that teenagers are waiting to be duly compensated—since while they are in this youth labor pool, they are all paid about the same, irrespective of their academic accomplishments. However, as they do when considering candidates of any age, employers of youth do give great weight to experience. This can be seen in Figure 5, which shows the employment rates for 1994 of those who graduated high school in 1992.

Males who held a job in high school had a higher post-graduation employment rate and monthly earnings $350 higher than those who did not. Females who worked in high school had a post-graduation employment rate 21 percentage points higher than those who hadn't, and their monthly earnings were about $250 higher.

Over the last 20 years the press has been wont to report on studies that showed ill effects of student employment on grades. But actually, studies from this time frame show that working a moderate number of hours (20 or less) does not depress grades. At some point, of course, work does affect schooling—but common sense tells us this.

Implications

What has developed in post-World War II America is a situation where those under 20 or 21 are pretty much treated alike in the labor market. The age of entry into jobs that pay more and have career ladders and fringe benefits seems to be rising, and is likely into the mid-20s now. But young graduates who are not rewarded in the years after high school for their academic efforts unlikely realize this. As a result, raising high school achievement levels and graduation rates are difficult tasks.

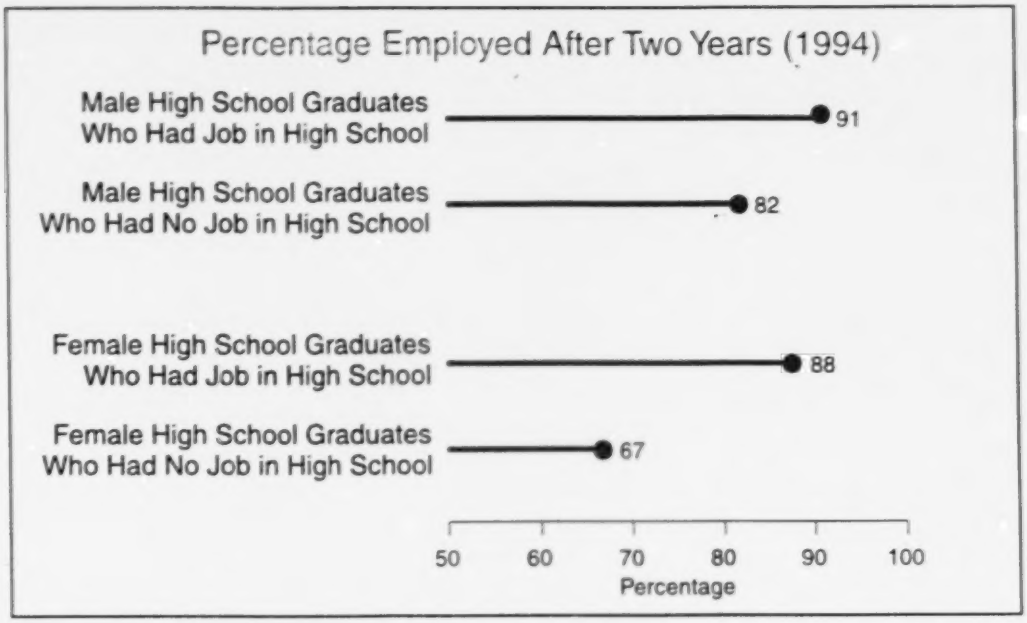
The solution here is not obvious. One encouraging effort now under way is the campaign to get businesses to ask for high school transcripts when they are hiring. In the past this seldom happened, as John Bishop pointed out in a study from the early 1990s.

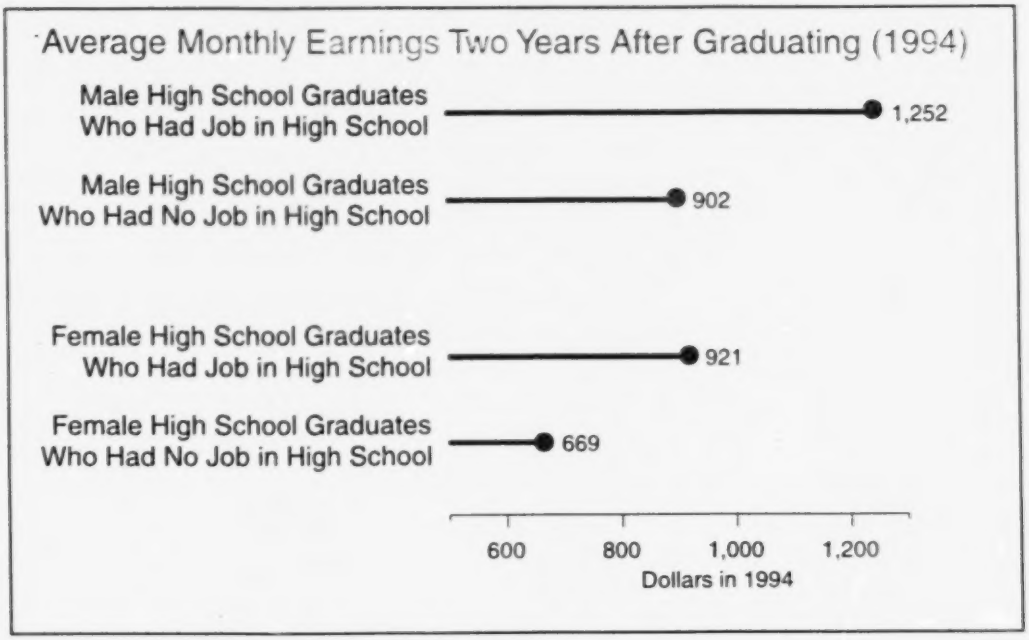
Over the last two years the Business Coalition for Education Reform has been urging employers to ask for transcripts, as a way of signaling to students that academics count in the employment world; about 5,000 employers to date (May 1999) have agreed to cooperate.

More must join the effort, though. A 1999 survey carried out by the Public Agenda Foundation found that while 84 percent of high school students say they would work harder if they knew employers would look at their

Figure 5 - The Difference Working Makes

Employment and Earnings of Male and Female 1992 High School Graduates (not enrolled in school) Two Years After High School (1994), by Employment in High School




Average Monthly Earnings Two Years After Graduating (1994)
Male High School Graduates Who Had Job in High School
1,252
Male High School Graduates Who Had No Job in High School
902
Female High School Graduates Who Had Job in High School
921
Female High School Graduates Who Had No Job in High School
669
600
800
1,000
1,200
Dollars in 1994

Source: NELS:88 data (National Center for Education Statistics), calculated by the ETS Policy Information Center.

transcripts, only 16 percent of employers say they do indeed ask for transcripts.[6]

Overall, what we have is a disjuncture between the age we complete public education and the age of economic adulthood. This is bound to cause a lot of problems—one of them being high school students working well below their potential. If nothing else, we need to understand what has been happening over the last three or more decades.

In other writings, this author has urged employers and educators to collaborate by providing our nation's youth with a combination of schooling and work experience, and to stretch out the high school years, if necessary, to make sure we allow ample time for students to master the academics. This kind of joint effort has the potential to establish a better link between learning and earning and, among other benefits, to make the economic rewards of school achievement tangible and clear.

We are not likely to fool youth into thinking that learning in high school pays; in fact, we should stop fooling ourselves. And if we tell ourselves that all must go to college, we must also keep in mind that only slightly more than one in four 25- to 29-year-olds earns a four-year college degree.

Those of us trying to bring about education reform need to further examine how much learning more actually results in earning more. This dynamic may be critical to reaching our ambitious national education goals. Setting high standards for achievement certainly seems the way to go, as does administering fair and reliable tests that are aligned to what is actually taught. But without consequences in the work world that can be clearly observed by high school students, forging change will surely continue to be like rowing upstream. In fact, more than 15 years of education reform has seen little change in the academic achievement of high school students or in graduation rates—rates that have actually been falling since 1992.

The previous discussion lends itself to numerous implications and additional questions.

- There is discussion about the "right" curriculum to make high school students more employable—giving them what employers want them to have. But what employers really seem to want is for hirees to be older, and curriculum changes cannot age high school graduates.

- Employers do recognize experience, as seen in Figure 5. Yet, the school-to-work movement's effort to incorporate worksite training and experience into the high school structure has resonated with only a small proportion of employers. Can we do a better job of building on the part-time work experiences that teenagers are able to get while going to school?

- We regularly read that employers are dissatisfied with the education of young people coming out of America's high schools. It is, therefore, puzzling that employers treat similarly those at both the top and bottom of the grade and test-score distribution scale, at least for the first couple years after high school graduation.

[6] New York Times, February 17, 1999.

- We have found many of our remedial youth education and training programs to be wanting in results. More specifically, findings from controlled experiments and evaluations using control groups showed that, on follow up, those in the experimental group did not fare better than those in the control group. But at ages 18-21, or thereabout, we know that all youth in the work force are treated much the same. What is the right standard of success, then, in this kind of labor market?

- If a disjuncture does exist between the age society stops providing education and the age of maturity, as demanded by the labor market for adult-type jobs, does a major issue in need of public policy exist?

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e-mail: pic@ets.org

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Director, ETS Policy Information Center: Paul E. Barton

Editor: Richard J. Coley

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